

personnel, and procedures necessary to conduct the approval tests required by this subpart, and that is free of influence and control of the applicant and other manufacturers, suppliers, and vendors of PFD lights.

(b) A sample light must be activated at night under clear atmospheric conditions. However, two lights must be used if the power source is water activated, and one light must be activated in fresh water and the other in salt water having the approximate salinity of sea water. The light, or lights, must begin to shine within 2 minutes after activation and, within 5 minutes after activation, must be seen from a distance of at least one nautical mile against a dark background.

(c) At least ten sample lights must be selected at random from a group of at least 25. Each sample light must be kept at a constant temperature of $65^{\circ}\pm 2^{\circ}\text{C}$ ($149^{\circ}\pm 4^{\circ}\text{F}$) for 24 hours. Each sample light must then be kept at a constant temperature of $\text{minus } 30^{\circ}\pm 2^{\circ}\text{C}$ ($\text{minus } 22^{\circ}\pm 4^{\circ}\text{F}$) for 24 hours. Five samples must then be submerged in salt water having the approximate salinity of sea water and the five other samples must be submerged in fresh water. The temperature of the water must be $15^{\circ}\pm 5^{\circ}\text{C}$ ($59^{\circ}\pm 9^{\circ}\text{F}$). The lights must then be activated and left submerged for eight hours. However, if their power sources need a supply of air to operate, the lights may be brought to their normal operating positions at the surface of the water for up to 10 seconds per minute during the eight hour period. At least nine of the ten lights must operate continuously over the eight hour period. If the lights are flashing lights, at least nine of ten must have a flash rate of between 50 and 70 flashes per minute when first activated or within five minutes thereafter.

(d) Individual tests must be conducted on a sample light to determine whether the light meets the requirements of § 161.012-7, except that technical data showing compliance with § 160.012-7(c) may be submitted with the application for approval in lieu of performing an individual test.

§ 161.012-13 Production tests and inspections.

(a) The manufacturer of approved lights must randomly select a sample of ten lights from each lot of lights produced. Each lot must not exceed 1,000 lights. At least nine of the ten lights, when tested in accordance with the test described in § 161.012-11(c), must meet the test criteria prescribed by that section. If less than nine lights meet the test criteria, another random sample of ten lights must be taken and tested. If less than nine of these lights meet the test criteria, none of the lights in the lot may be sold as Coast Guard approved equipment.

(b) The Coast Guard does not inspect lights approved under this subpart on a regular schedule. However, the Commandant may select samples and conduct tests and examinations whenever necessary to determine whether the lights are being manufactured in compliance with the requirements in this subpart.

§ 161.012-15 Markings.

(a) Each light manufactured under Coast Guard approval must be permanently and legibly marked with:

(1) The manufacturer's name or trade mark that clearly identifies the model designation;

(2) The Coast Guard approval number assigned to light; and

(3) Instructions on how to activate the light.

(b) The power source of each light must be permanently and legibly marked with its date of manufacture and expiration date. Each date must include the month and year.

§ 161.012-17 Instructions.

(a) Each light must have instructions on how to attach it to a PFD in a manner that complies with § 161.012-7(a). However, in the case of lights that are to be attached by a PFD manufacturer, only one set of instructions need be provided for each shipment of lights.

(b) If a light is designed to be attached to a finished PFD, any attachment materials that are not supplied with the light must be clearly identified in the instructions. If a light is to

be attached to a finished PFD by a PFD purchaser, any attachment materials not supplied with the light must be generally available for purchase.

(c) Each set of instructions must—(1) Clearly identify the kind of PFD construction (for example fabric covered or vinyl dipped) to which the light can be attached; and

(2) Not require penetration of the buoyant material of the PFD.

Subpart 161.013—Electric Distress Light for Boats

SOURCE: CGD 76-183a, 44 FR 73054, Dec. 17, 1979, unless otherwise noted.

§ 161.013-1 Applicability.

(a) This subpart establishes standards for electric distress lights for boats.

(b) [Reserved]

§ 161.013-3 General performance requirements.

(a) Each electric light must:

(1) Emit a white light which meets the intensity requirements of § 161.013-5;

(2) Be capable of automatic signaling in a manner which meets the requirements of § 161.013-7;

(3) Contain an independent power source which meets the requirements of § 161.013-9;

(4) Float in fresh water with the lens surface at or above the surface of the water;

(5) Be equipped with a waterproof switch; and

(6) Meet the requirement of paragraphs (a) (1) through (4) of this section after floating for at least 72 hours followed by submersion in 5% by weight sodium chloride solution for at least 2 hours.

(b) The electric light may not be equipped with a switch mechanism which permits continuous display of a beam of light except that the light may be equipped with a switch which returns to the off position when pressure is released.

§ 161.013-5 Intensity requirements.

(a) If an electric light emits light over an arc of the horizon of 360 degrees, the light must:

(1) When level, have a peak intensity within 0.1 degrees of the horizontal plane;

(2) Have a peak Equivalent Fixed Intensity of at least 75 cd; and,

(3) Have a minimum Equivalent Fixed Intensity within a vertical divergence of ± 3 degrees of at least 15 cd.

(b) If an electric light emits a directional beam of light, the light must:

(1) Have an Equivalent Fixed Intensity of no less than 25 cd within ± 4 degrees vertical and ± 4 degrees horizontal divergence centered about the peak intensity; and,

(2) Have a minimum peak Equivalent Fixed Intensity of 2,500 cd.

(c) The Equivalent Fixed Intensity (EFI) is the intensity of the light corrected for the length of the flash and is determined by the formula:

$$EFI = I \times (t_c - t_i) / 0.2 + (t_c - t_i)$$

Where:

I is the measured intensity of the fixed beam,

t_c is the contact closure time in seconds, (0.33 for this S-O-S signal), and t_i is the incandescence time of the lamp in seconds.

(d) An electric light which meets the requirements of either paragraph (a) or (b) of this section need not, if capable of operating in both manners, meet the requirements of the other paragraph.

§ 161.013-7 Signal requirements.

(a) An electric light must have a flash characteristic of the International Morse Code for S-O-S and, under design conditions,

(1) Each short flash must have a duration of $\frac{1}{3}$ second;

(2) Each long flash must have a duration of 1 second;

(3) The dark period between each short flash must have a duration of $\frac{1}{3}$ second;

(4) The dark period between each long flash must have a duration of $\frac{1}{3}$ second;

(5) The dark period between each letter must have a duration of 2 seconds;

(6) The dark period between each S-O-S signal must have a duration of 3 seconds.